

(No Model.)

J. B. EMERY.
ROTARY CUTTER.

No. 295,490.

Patented Mar. 18, 1884.

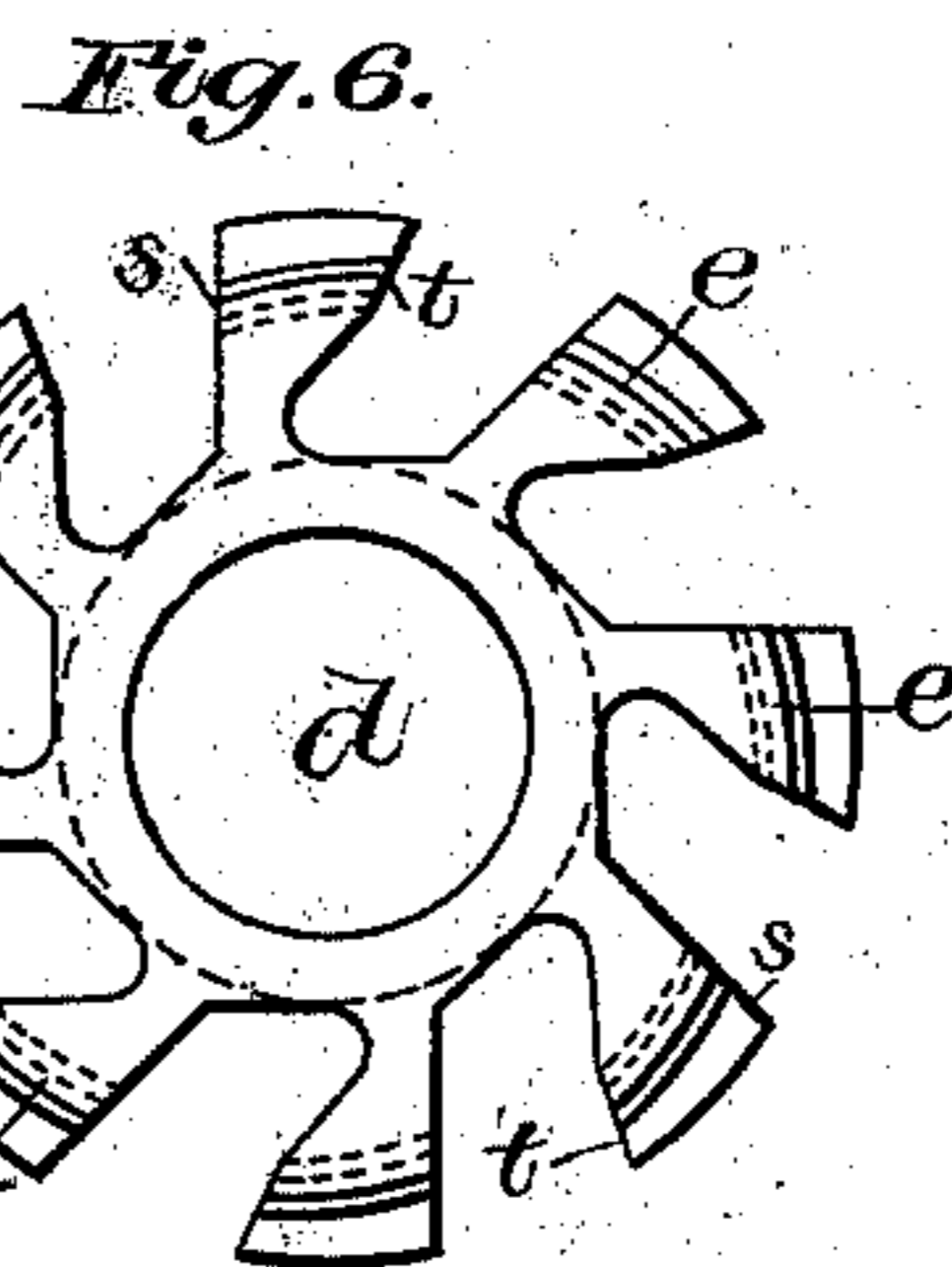
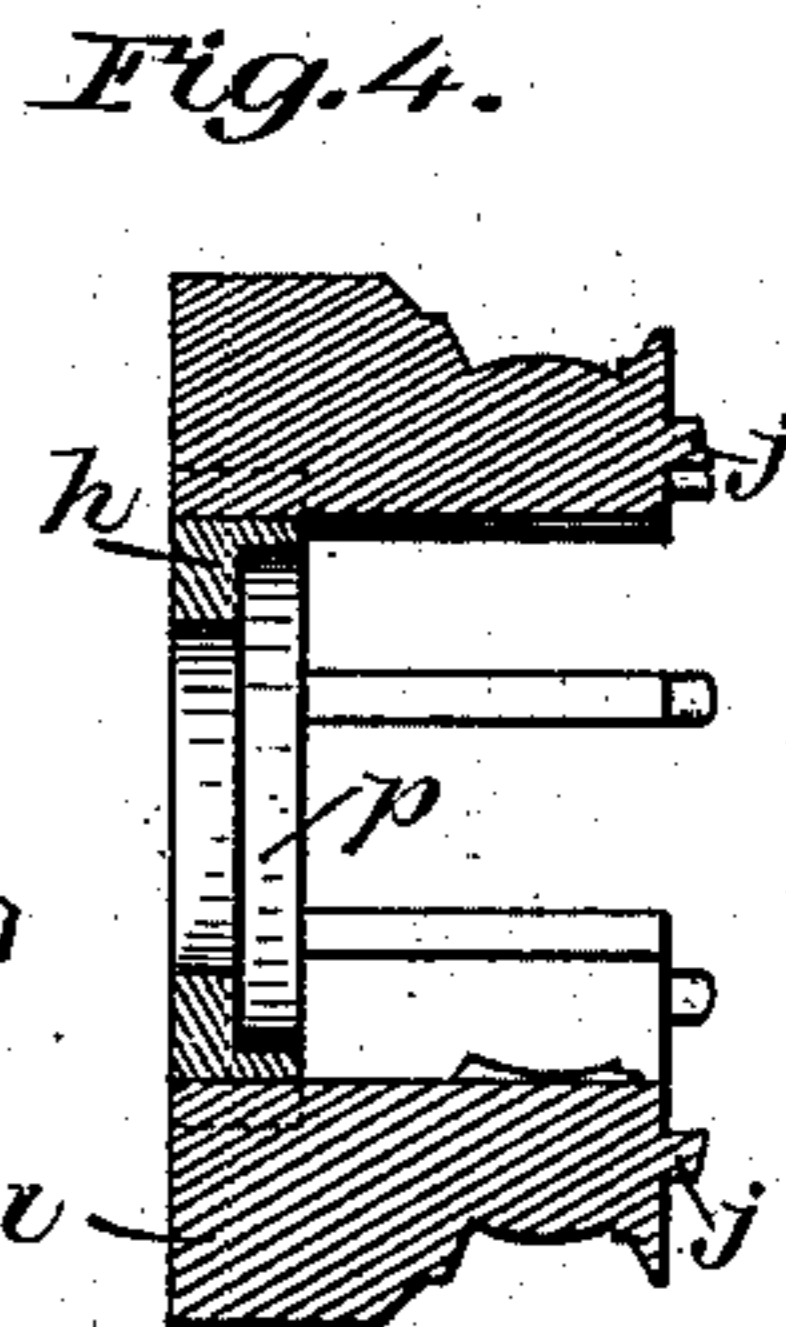
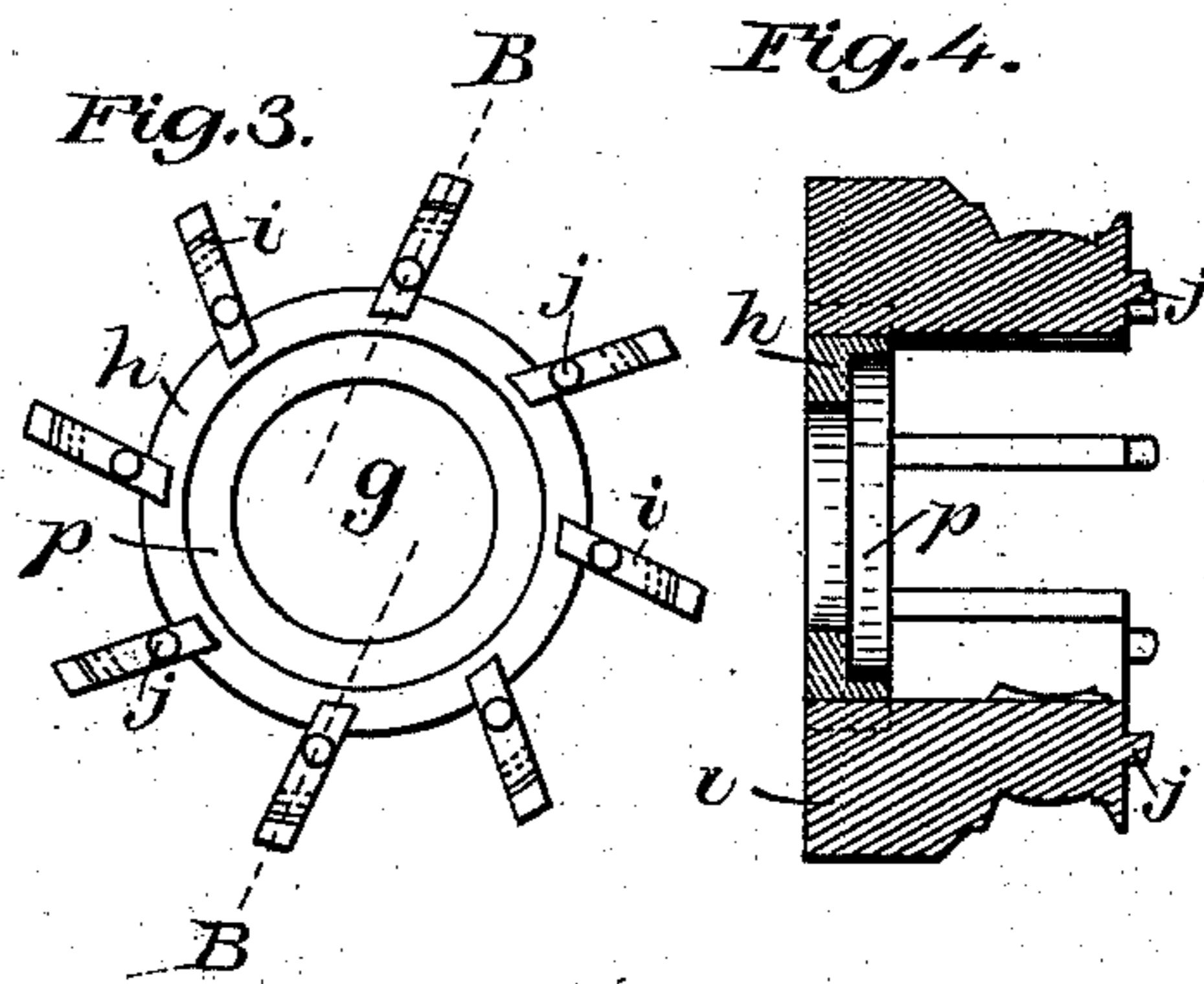
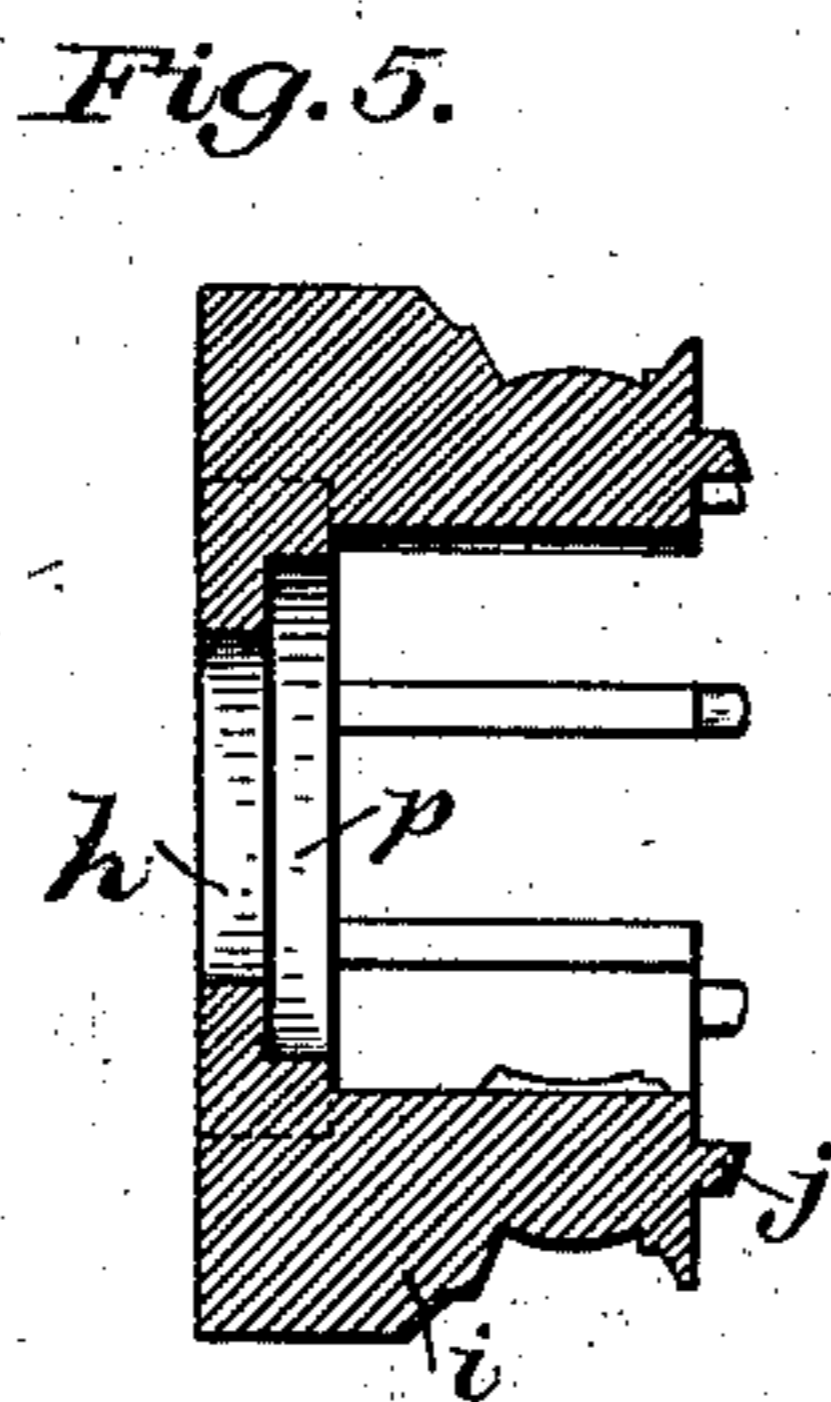
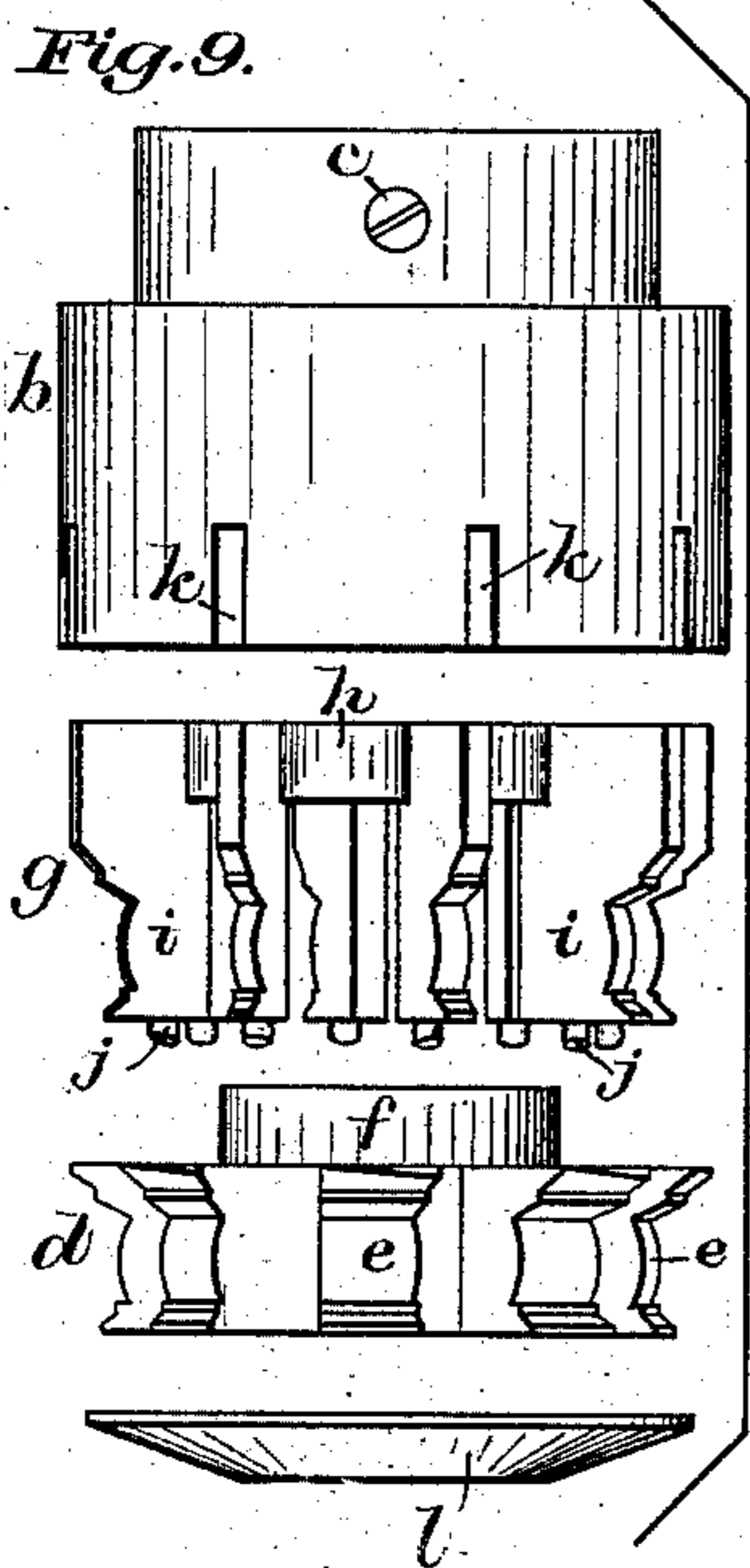
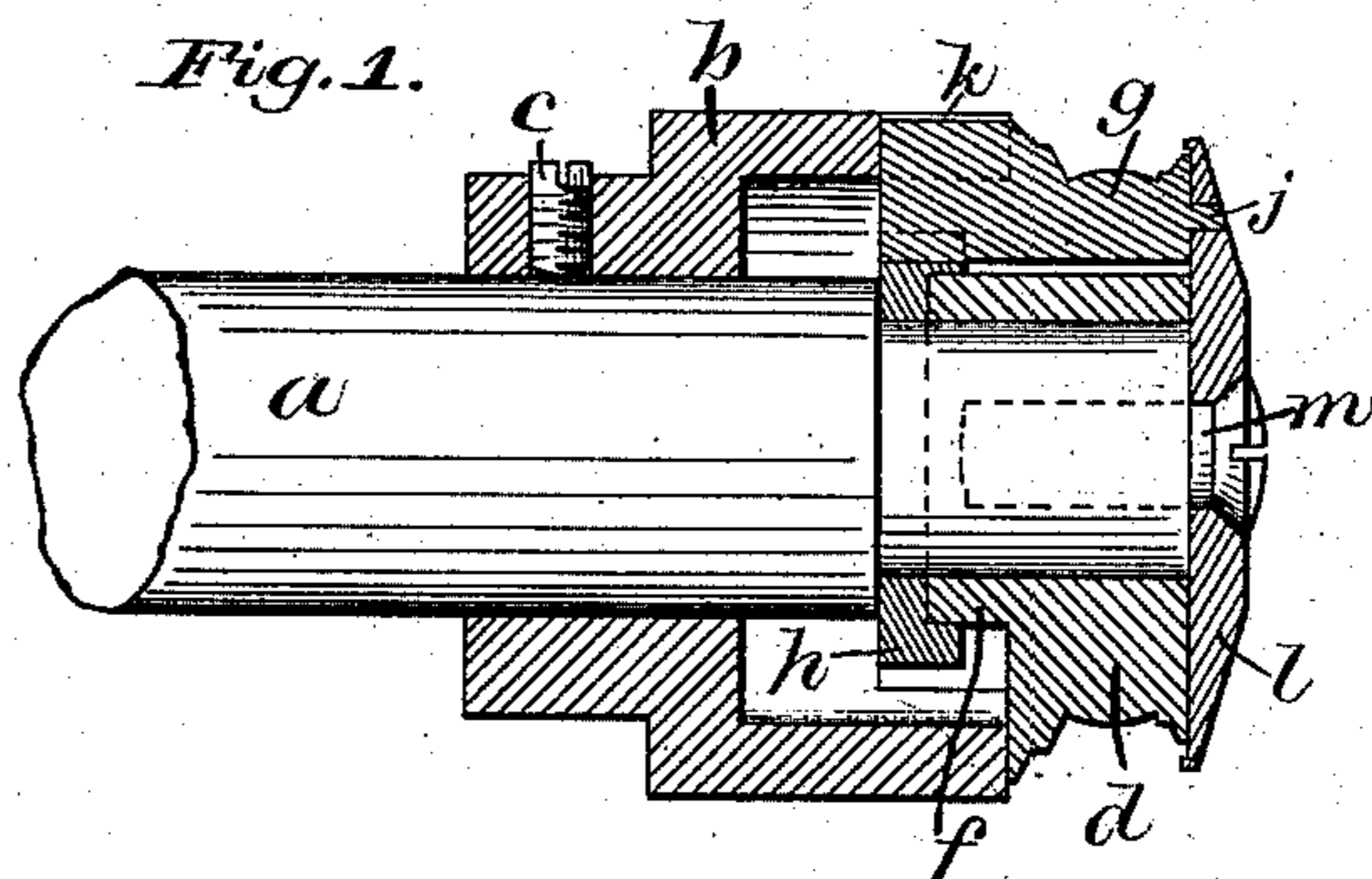
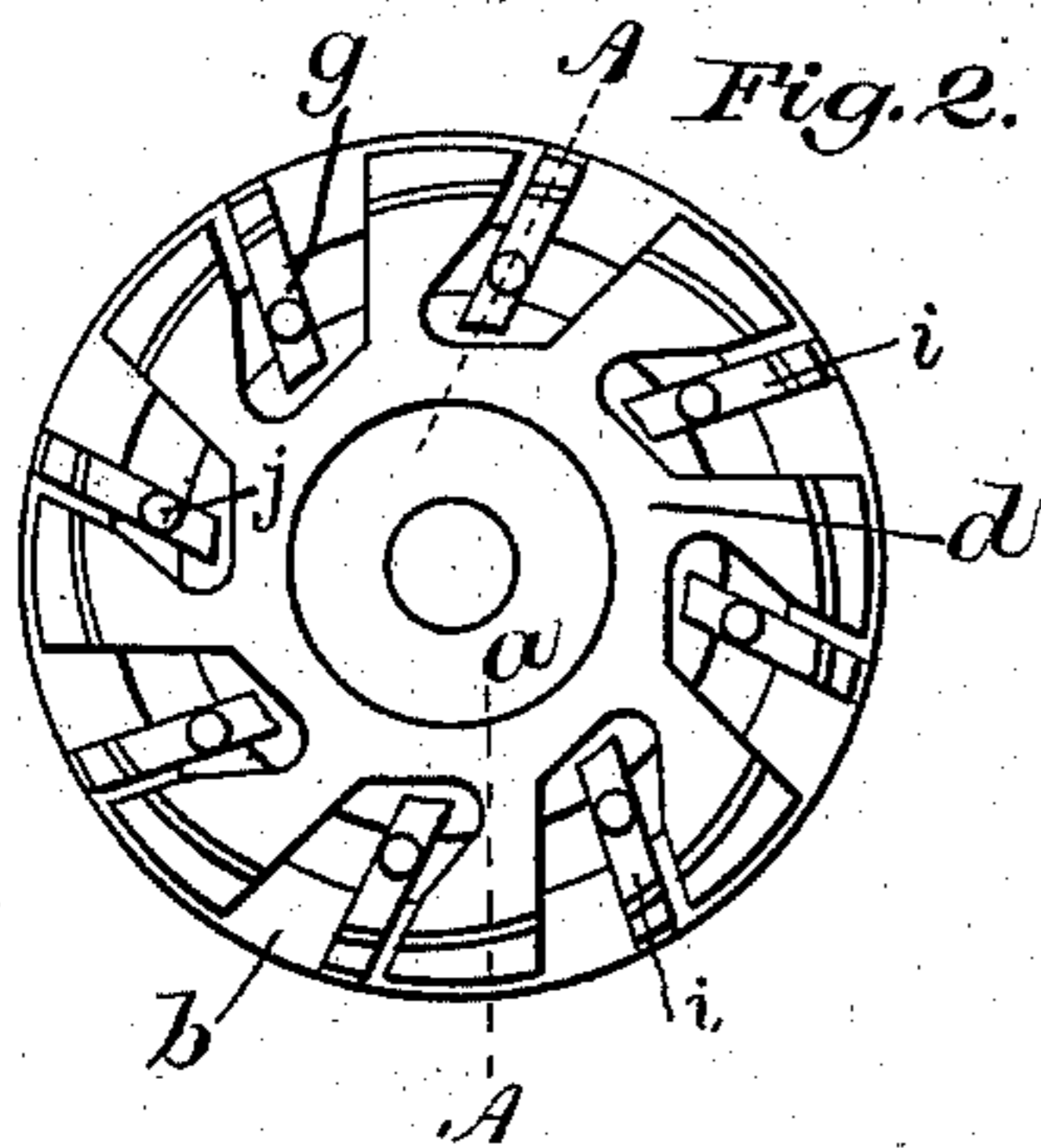


Fig. 8.

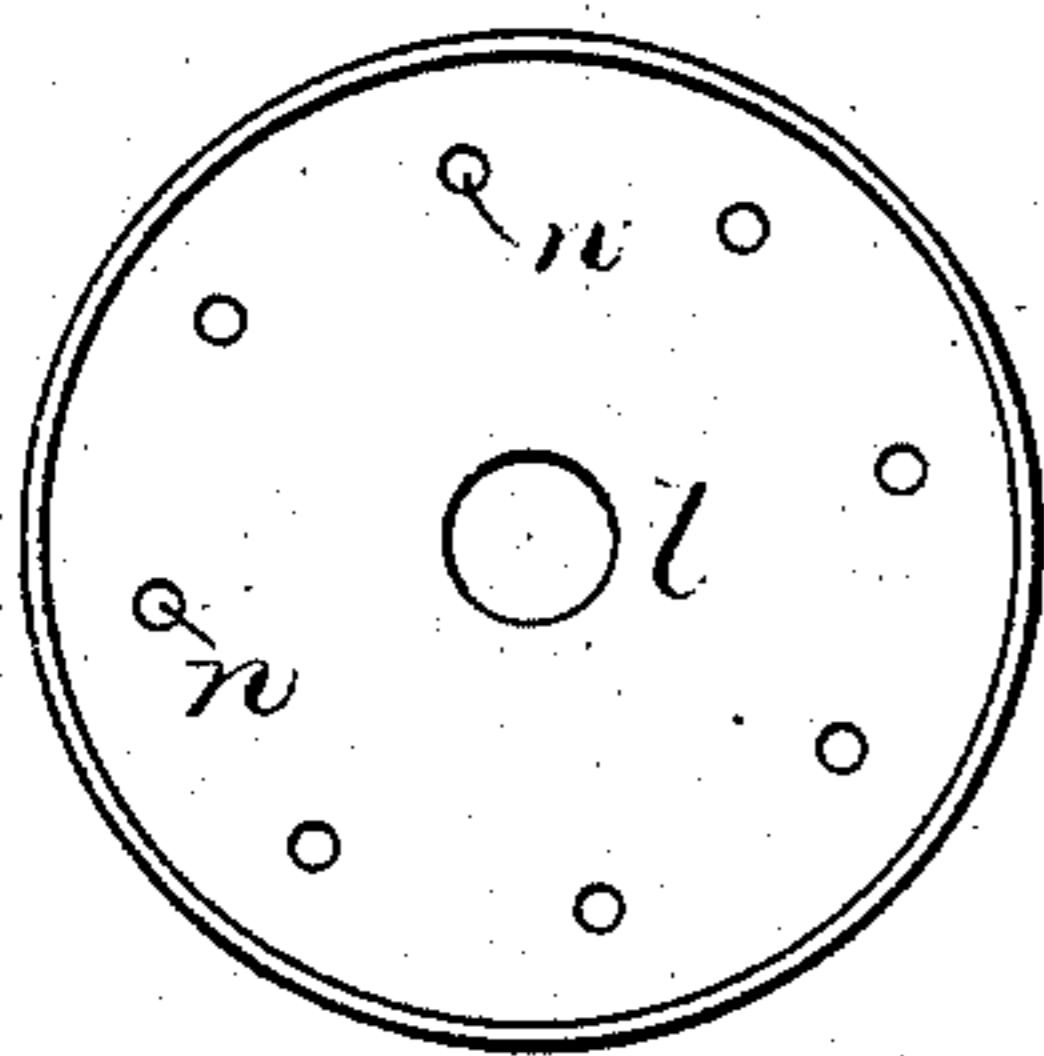
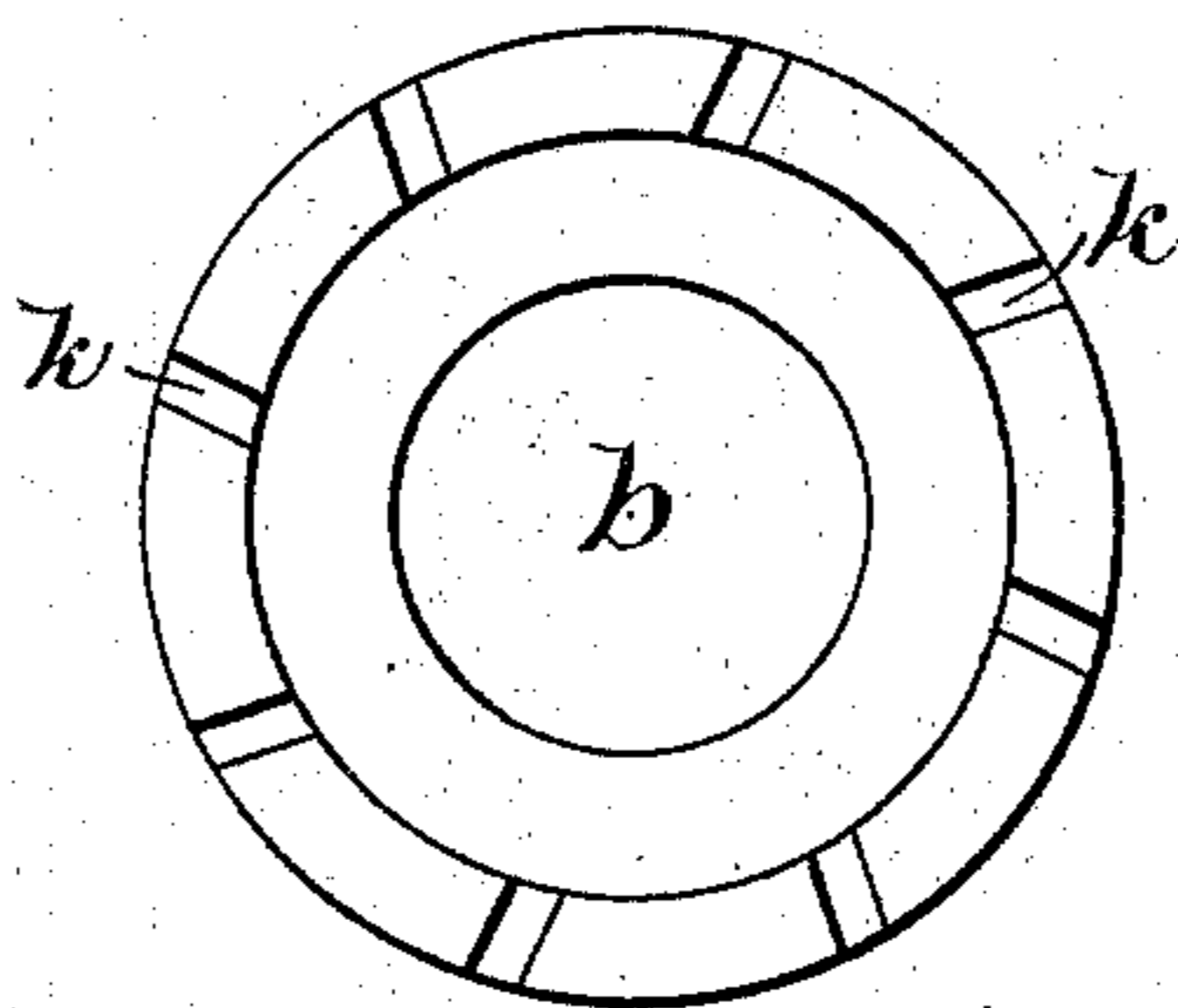


Fig. 7.



WITNESSES

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ROTARY CUTTER.

SPECIFICATION forming part of Letters Patent No. 295,490, dated March 18, 1884.

Application filed January 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. EMERY, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Rotary Cutters, of which the following is a specification.

This invention relates to rotary cutters formed with radial teeth having cutting-edges adapted to cut a path the converse of their own longitudinal outline; and the invention consists in the construction and combination of the divers devices embodied therein, as will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

In said drawings, Figure 1 shows my cutter in longitudinal section, taken as on line A A, Fig. 2, the cutter being shown as mounted on an arbor, shown in elevation, a collar, with which the cutter and guard interlock, being also shown in section, together with a round disk, which is employed when my cutter is utilized for trimming the edges of boot and shoe soles. Fig. 2 is an end elevation, taken as viewed from the right in Fig. 1, but without the rand-disk. Fig. 3 is a detached elevation of the guard, taken as viewed in Fig. 2. Fig. 4 is a longitudinal section of the guard, taken as on line B B, Fig. 3. Fig. 5 is a section like Fig. 4, but showing a modification of the construction of the guard. Fig. 6 is a detached front elevation of the cutter proper, viewed as in Fig. 2. Fig. 7 is a detached front elevation of the collar, taken as viewed in Fig. 3. Fig. 8 is a detached elevation of the rand-disk, viewed as from the left in Fig. 1. Fig. 9 is a top or plan view of all the parts shown in the preceding figures, (except the arbor,) the same being shown as separated, but in their proper respective relative positions to be telescoped together or interlocked, as in Fig. 1.

In said views, *a* represents a section of the arbor, on which the rotary cutter is shown as mounted. A collar, *b*, is shown as secured on the arbor by a set-screw, *c*.

The cutter is represented at *d*, with an axial passage to receive the reduced end of the arbor, and as formed with the usual radial cutting-teeth *e*, while a sleeve-like extension, *f*, of the cutter is formed to extend into the inte-

rior annular chamber, *p*, in ring *h* of guard *g*, as shown in Fig. 1. In the front portion of collar *b* are cut a series of radial slots, *k*, the number and circumferential relations whereof coincide with the positions of teeth *e* upon the periphery of cutter *d*.

A guard, *g*, (clearly shown in Figs. 3, 4, 5,) is formed with a ring, *h*, with a hole to receive the diminished end of arbor *a*, and with an external diameter to enter the annular chamber in collar *b*, while a series of wings, *i*, secured in said ring, as shown in Figs. 3, 4, or formed upon said ring, as shown in Fig. 5, extend radially beyond the ring, and also extend linearly through the cutter *d* between its teeth *e*, as shown in Fig. 1. Upon the outer end of each of wings *i* is formed a stud, *j*, arranged to enter coinciding holes *n* in rand-disk *l*, as shown in Fig. 1.

The method of assembling the respective parts and their co-operation is as follows: The collar *b* being secured on arbor *a* in proper position, guard *g* is next placed in position upon the arbor, its collar *h* entering the annular chamber in the collar, while the wings *i* enter the respective slots *k* in the collar, by which the guard is secured from rotation. Next, the cutter *d* is placed upon the arbor, its teeth *e* entering the spaces between wings *i* of the guard. Then the rand-disk is adjusted upon the studs *j* of wings *i*, and is secured in place by the axial screw *m*, Fig. 1, the parts being so relatively formed that said screw will lock the cutter in position as placed on the arbor, and prevent any tendency to its partial rotation by reason of its contact with any object on which it was acting. As the spaces between wings *i* of cutter *g* are wider than the thickness of teeth *e* of cutter *d*, therefore the cutter may, when screw *m* is slackened, be partially rotated upon the arbor, so as to bring wings *i* nearer to the front radial faces, *t*, of teeth *e* of cutter *d*, or nearer the rear faces, *s*, of said teeth, it being found that when said cutters are new and their teeth of full thickness that they should be so arranged that said wings shall be nearest the rear faces, *s*, of teeth *e*; but that as said teeth are worn thinner and are, by reason of the obliquity of their outer or peripheral line relative to a true circle, made

shorter, said front faces, *t*, of the teeth should be brought nearer to the wings of the guard, as shown in Fig. 2.

I do not herein broadly claim a guard in combination with a rotary cutter, as a patent therefor has heretofore been allowed to me and is now in process of issue, my present invention relating to a guard so constructed that the several wings thereof are all formed upon or secured to the same ring, whereby they may all be adjusted in the time required to adjust one, when all are separately attached or secured in place.

Hence I claim as my invention—

1. In combination with a rotary cutter formed with outwardly-projecting teeth, a guard formed with a ring and a series of wings radiating therefrom, and arranged to enter the spaces between the teeth of the cutter and to be adjusted in their relative distance from the front and rear faces of said teeth, substantially as specified.

2. In combination with rotary cutter *d*, having teeth *e*, guard *g*, formed with ring *h*, and wings *i*, formed upon or secured thereto, and arranged to enter between teeth *e* of the cutter, with means whereby the relative distance between said wings and the rear and front faces of said teeth may be adjusted, substantially as specified.

3. In combination, collar *b*, having radial slots *k*, cutter *d*, having the outwardly-projecting teeth *e*, a guard having ring *h*, and wings *i*, radiating and extending therefrom, and adapted to enter the spaces between teeth *e* of the cutter, and to be adjusted in relation to the front and rear faces thereof, all substantially as specified.

4. A rotary cutter-guard, *g*, formed with a centering-ring, *h*, adapted to receive the cut-

ter-arbor *a*, and with a series of radial guard-wings, *i*, formed upon or secured thereto, and having their outer lines or faces molded or outlined to conform to and co-operate with the teeth of cutter *d*, to gage and govern the depth of cut of the teeth *e* thereof, substantially as specified.

5. In combination with cutter *d* and rand-disk *l*, the guard formed with wings *i*, supported by ring *h*, and with studs *j*, arranged to enter corresponding holes, *n*, in said disk, substantially as specified.

6. In combination, slotted collar *b*, formed with an annular chamber, and having slots *k* formed in its front portion, guard *g*, formed with ring *h*, to enter the chamber in said collar, and having radial wings *i*, cutter *d*, formed with teeth *e*, with space to receive said wings *i* of the guard, and for adjustment thereof, and having sleeve-like extension *f*, adapted to enter the annular recess in ring *h* of the guard, rand-disk *l*, formed to interlock with studs *j*, and means for locking said cutter in position, all substantially as specified.

7. In combination with collar *b*, cutter *d*, and disk *l*, the guard-wings *i*, arranged between the teeth *e* of said cutter, and interlocked in said collar and disk, substantially as specified.

8. In combination with collar *b*, rand-disk *l*, and guard-wings *i*, interlocked in said collar and disk, the cutter *d*, arranged to receive said wings *i* between its teeth, and to be adjusted relatively thereto, substantially as specified.

JOHN B. EMERY.

Witnesses:

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